

# Los Alamos

Los Alamos National Laboratory  
Los Alamos, New Mexico 87545

## memorandum

TO: Distribution  
*Charles Nylander*  
FROM: Charles Nylander, ESH-18  
SYMBOL: ESH-18/WQ&H:01-344  
SUBJECT: **GROUNDWATER CHARACTERIZATION PROGRAM QUARTERLY MEETING;  
GROUNDWATER CHARACTERIZATION PROGRAM PLANNING FOR FY 02**

DATE: October 1, 2001  
MAIL STOP/TELEPHONE: K497/-5-4681

2001  
RECEIVED

There will be a Groundwater Characterization Program Quarterly Meeting on October 16-17 at the Cities of Gold Casino Hotel in Pojoaque, New Mexico. The agenda for the meeting is enclosed.

During the March 2001 Annual Meeting for the Groundwater Characterization Program, I agreed to provide more opportunities to the Laboratory's stakeholders for recommendations and comments on the annual scope of work proposed for implementation pursuant to the Laboratory's Hydrogeologic Workplan. A planning agenda item has been added to the Groundwater Characterization Program Quarterly Meeting Agenda as a means to formally solicit recommendations and comments regarding the annual scope of work.

In order to facilitate discussion regarding the upcoming Quarterly Meeting planning agenda item, I have enclosed a copy of a letter to the New Mexico Environment Department, dated September 20, 2001, regarding proposed scope of FY02 activities to be conducted pursuant to the Hydrogeologic Workplan. Please consider this information in developing any recommendations or comments for the upcoming Quarterly Meeting.

Thank you.

CN/am

Enclosures: a/s

Distribution:

A. Armijo, NNM CAB, Nambe Pueblo, NM, w/enc  
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R. Edge, DOE/AL/ERD, w/enc  
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HSWA LANL G/m/HWP 2001

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P. Padilla, Los Alamos County, Los Alamos, NM w/end  
S. Johnson, LATA, w/enc  
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B. Johnson, Westbay, N. Vancouver, w/enc  
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Congressman T. Udall, Santa, Fe, NM, w/enc  
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R. Enz. DOE/LAAO, MS A316, w/enc  
T. Taylor, LAAME, DOE/LAAO, MS A316, w/enc

J. Vozella, DOE/LAAO, MS A316, w/enc.  
M. Johanses, DOE/LAAO, MS A316, w/enc  
G. Turner, DOE/LAAO, MS A316, w/enc  
P. Reneau, IT Corp., MS M892, w/enc  
R. Hull, LATA, MS M321, w/enc  
S. Maez, LATA, MS M321, w/enc  
M. Everett, MK/PMC, MS M327, w/enc  
A. Crowder, MK/PMC, MS M327, w/enc  
M. Dale, NMED/DOE/OB, MS J993, w/enc.  
S. Yanicak, NMED/DOE/OB, MS J993, w/enc.  
R. Koch, SAIC, MS J521, w/enc  
K. Henning, CIC-15, MS M311, w/enc  
IM-5, MS A150, w/enc  
B. Grimes, MS A117, w/enc  
T. Gunderson, DLDOPS, MS A100, w/enc  
J. Aldrich, EES-16, MS D462, w/enc  
D. Broxton, EES-16, MS J462, w/enc  
G. Cole, EES-16, MS D462, w/enc  
F. Goff, EES-16, MS D462, w/enc  
D. Hickmott, EES-16, MS D462, w/enc  
P. Longmire, EES-16, MS D469, w/enc  
D. Vaniman, EES-16, MS D462, w/enc  
R. Warren, EES-16, MS D462, w/enc  
P. Aamodt, EES-16, MS D462, w/enc  
W. Carey, EES-16, MS D462, w/enc  
K. Birdsell, EES-16, MS T003, w/enc  
E. Keating, EES-16, MS T003, w/enc  
B. Robinson, EES-16, MS T003, w/enc  
B. Stone, EES-16, MS T003, w/enc  
A. Pratt, EES-13, MS M992, w/enc  
A. Dorries, EES-13, MS M992, w/enc  
S. Bolivar, EES-13, MS H865, w/enc  
D. Katzman, EES-13, MS M992, w/enc  
D. Farley, EES-13, MS H865, w/enc  
E. Springer, EES-15, MS J495, w/enc  
B. Newman, EES-15, MS J495, w/enc  
A. Gallegos, EES-15, MS J495, w/enc  
C. LaDelfe, EES-17, MS D462, w/enc  
P. Stauffer, EES-16, MS T003, w/enc  
M. Witkowski, EES-DO, MS C306, w/enc  
T. Antan, EES-13, MS M992, w/enc  
G. Bussod, EES-16, MS T003, w/enc  
J. Skalski, EES-17, MS H865, w/enc  
C. Echohawk, EES-9, MS C323, w/enc  
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D. Hollis, E-ER, MS M992, w/enc  
M. Cummings, E-ER, MS M992, w/enc , (2 copies)  
B. Martin, E-ER, MS M992, w/enc  
T. Ball, E-ER, MS M992, w/enc  
S. Pearson, E-ER, MS M992, w/enc  
S. Natalie, E-ER, MS M992, w/enc  
L. Maassen, E-ER, MS M992, w/enc  
D. McInroy, E-ER, MS M992, w/enc  
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J. McCann, E-ER, MS M992, w/enc  
L. Goen, ESA-EA, MS F627, w/enc  
L. McAtee, ESH-DO, MS K491, w/enc  
D. Erickson, ESH-DO, MS K491, w/enc  
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LANL Reading Room, MS A117  
D. Woitte, LC-GL, MS A187, w/enc  
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C. Thayer, LC-GL, MS A187, w/enc  
J. Holt, NWT-PO, MS F629, w/enc  
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**Los Alamos National Laboratory**  
**Hydrogeologic Characterization Program**  
**Quarterly Meeting**  
**October 16-18, 2001**

**Tuesday, October 16**

Cities of Gold Casino Hotel, Pojoaque

- 8:30 Introduction (Charlie Nylander)
- 8:45 Groundwater Integration Team (GIT) Subcommittee Status Reports
  - Information Management (Kendra Henning)
  - Well Construction (John McCann)
  - Geochemistry (Pat Longmire)
- 9:45 Break
- 10:00 GIT Subcommittee Status Reports (continued)
  - Hydrology (David Rogers)
  - Modeling (Bruce Robinson)
- 10:40 Performance Review (Charlie Nylander)
- 12:00 Lunch
- 1:00 DQO Iteration Proposal

**Wednesday, October 17**

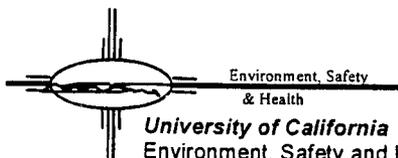
Cities of Gold Casino Hotel, Pojoaque

- 8:30 DQO Iteration Proposal Wrap-up (Charlie Nylander)
- 9:30 FY02 Schedule and Planning Session (Charlie Nylander)
- 10:30 Break
- 10:45 Interface between ER Risk Assessment and Hydrogeologic Workplan (Diana Hollis/Charlie Nylander)
- 11:30 Lunch
- 1:00 External Advisory Group session with stakeholders
- 3:00 Response to stakeholder concerns (Charlie Nylander)

**Thursday, October 18**

LATA Conference Room

- 9:00 EAG closeout meeting with Managers
- 10:30 EAG close out meeting with GIT
- 12:00 Lunch
- 1:00 EAG working session



Environment, Safety  
& Health

**University of California**  
Environment, Safety and Health Division  
Water Quality and Hydrology Group (ESH-18), MS K497  
Los Alamos, New Mexico 87545  
505-665-4681/FAX 505-665-9344



**U.S. Department of Energy**  
Los Alamos Area Office, MS A316  
Environmental Restoration Program  
Los Alamos, New Mexico 87544  
505-667-7203/FAX 505-665-4504

September 20, 2001

btrt2 p0m ESH-18/WQ&H:01-315

Mr. John Young  
LANL Corrective Action Project Leader  
New Mexico Environment Department  
Hazardous Waste Bureau  
2044 A Galisteo  
P.O. Box 26110  
Santa Fe, New Mexico 87502-6110

**SUBJECT: SCHEDULE OF GROUNDWATER CHARACTERIZATION PROGRAM  
ACTIVITIES FOR FY 2001 AND FY 2002**

Dear Mr. Young:

This letter is written to satisfy a commitment made during the March 19, 2001 Senior Managers meeting (the first day during the week-long Annual Groundwater Characterization Program meeting). At that time, it was hoped that the scope for well drilling could be agreed upon in the spring prior to the coming fiscal year to allow effective planning to take place through the summer. It is still our hope to use this approach next year, however this year's budget uncertainties made it impossible to provide realistic drilling targets this last spring. Although many of the budget uncertainties still persist, this letter is provided to describe the FY 02 proposed scope regarding implementation of the Hydrogeologic Workplan.

**FY 02 PROPOSED SCOPE**

Due to the successful completion of the wells in FY 01, the proposed drilling schedule for FY 02, continuing implementation of the Hydrogeologic Workplan, includes the following regional aquifer wells: Well R-8 completion (Los Alamos Canyon), Well R-13 completion (lower Mortandad Canyon), Well R-14 drilling and completion (Ten Site Canyon/Mortandad Canyon), and drilling Well R-20 (vicinity of Technical Area 54). This proposed scope of drilling activities is based on budget requests that have been made through DOE's Defense Program (DP) and Environmental Management (EM) Program. If the Laboratory's Environmental Restoration (ER) Project experiences program cost efficiencies during FY 02, an additional regional aquifer well will be pulled into FY 02 from the FY 03 baseline scope. This additional well is tentatively proposed as either well R-18 or R-21 dependent on NMED/HWB input on well prioritization. As stated in more detail in this letter, the Laboratory is confident that all activities required for the site-wide characterization of the Laboratory's hydrogeologic setting, conducted pursuant to the iterative approach detailed in the Hydrogeologic Workplan, will be completed prior to the end of the seven (7) year Workplan schedule.

During FY 02 the Laboratory will continue to perform activities related to Information Management, including: Module Development; ER/ESH data exchange; GIS/Spatial Water Quality Database User Interface; Project Management; and System Maintenance and Administration.

During FY 02 the Laboratory will continue to perform activities related to modeling, including: Linkage of Los Alamos Canyon/Mortandad Canyon Output to the Regional Model; Examination of the Effect of Local Recharge on the Regional Aquifer; Continue to Develop and Test New Models for the Regional Aquifer; Incorporate New Data in Model Calibration; begin to Define Zones of Capture for Wells on the Pajarito Plateau; and Update and Maintain the 3-D Geologic Model.

During FY 02 the Laboratory will continue to perform activities related to the Groundwater Integration Team (GIT), including the conduct of Quarterly and Annual Meetings with NMED. The use of the External Advisory Group (EAG) will be continued also. Subsequent to the Quarterly Meeting scheduled for October 16, 2001, the Laboratory will work with a NMED Core Team to negotiate the remaining data quality objectives for the life cycle of the Hydrogeologic Workplan, and define the nature of the final deliverable(s) anticipated to close out the Workplan.

In addition to providing FY 02 scope, this letter also serves as a response to your letter dated January 24, 2001 approving the scope of groundwater characterization activities for FY 01, as a result of the Laboratory's proposals made during the March 29-31, 2000 Annual Workplan meeting. Responses and clarifications regarding the specific contents and expectations stated in your letter are addressed in the next section of this letter, confirming the FY 01 scope.

## **FY 01 PROPOSED SCOPE**

Your letter stated that the number of wells the Hazardous Waste Bureau...

"agreed to and expects completed this fiscal year (FY 2001) was presented in the October 3-5, 2000 Quarterly Workplan meeting and is as follows: R-5, R-7, R-8, R-13, R-22, and R-27. An additional regional aquifer well located at Technical Area (TA)-37, identified as CdV-R37-2, is also expected for completion this fiscal year...Additionally, two intermediate depth wells (600-700 feet) in Mortandad Canyon are also to be completed."

The above-mentioned scope with the exception of well R-27, which was pushed out of the FY 01 baseline, was successfully accomplished during FY 01, and the Laboratory appreciates your efforts and those of your NMED colleagues supporting these accomplishments. As a point of clarification, please note that during the October 3, 2000 Quarterly Workplan meeting the above work scope was articulated, as mentioned in your letter. The minutes from that meeting reflect that what was stated regarding well R-8 was that due to Defense Program funding limitations, well R-8 would only be started in FY 01 and would have to be completed in early FY 02. Please be aware that drilling activities for well R-8 began the second week of September, and it is anticipated that the borehole will be completed during October 2001.

There are several additional responses and clarifications that the Laboratory wishes to make regarding your letter of January 24, 2001. For example, your letter stated the expectations that well CdV-R37-2 and two intermediate wells located in Mortandad Canyon would be completed during FY 01. As previously noted, these wells have been completed during FY 01, however they were not installed as part of the scope of the Laboratory's Hydrogeologic Workplan. These wells are within the scope of the Environmental Restoration (ER) project, and were installed pursuant to a RCRA Facility Investigation Workplan for Mortandad Canyon and a Corrective Measure Study being conducted at Technical Area 16. However, all of the hydrogeologic data and information collected from these ER wells is being integrated into the characterization activities conducted under the Hydrogeologic Workplan.

On page two of your letter you stated that the Workplan was to be completed by FY 2002, and that "...LANL must make every effort to complete the Workplan by the original (FY 2002) schedule." The Laboratory does not agree with the stated expectation that the Workplan will be completed by FY 02. For the sake of clarifying the record, the original draft of the Laboratory's Hydrogeologic Workplan (dated December 6, 1996) that was submitted to NMED/HWB for review and approval did originally contain a four (4) year drilling schedule from FY 99 thru FY 02. However, by the time NMED/HWB approved the Workplan in March 1998, the drilling schedule had been amended to reflect seven (7) years, from FY 99 thru FY 05, and this is the schedule that was approved by NMED/HWB and published in the final Hydrogeologic Workplan, dated May 22, 1998.

Your letter states that recent proposed changes in the drilling strategy should allow the Laboratory to accelerate the FY 05 completion of the Workplan, and the Laboratory does agree. Despite scope and schedule changes that have occurred throughout the first four years of Workplan implementation regarding individual wells (each change discussed and negotiated with NMED), the Laboratory is still on schedule to complete the Workplan within the approved seven (7) year schedule. In this respect, it is our expectation that the on-going re-iteration on the Data Quality Objectives and "bounding" of the remaining scope of the Hydrogeologic Workplan, which will be presented and discussed at the Quarterly Meeting in October, 2001 and finalized following further discussions with you and other NMED staff with an agreement with NMED/HWB during November/December, will provide sound rationale and technical support for early completion of the Workplan prior to end of FY 05.

A review of the meeting minutes for the Groundwater Characterization Program Quarterly and Annual meetings since October 3, 2000 (the meeting referenced by your letter) indicates that several scope changes have been made throughout FY 01, as follows:

Quarterly Meeting January 30, 2001 No changes from October 3, 2000;

Annual Meeting March 20-23, 2001 FY 01 activities include installation  
of R-22, R-7, R-5, and ER wells in  
Mortandad Canyon and CdV-R37-2;

September 20, 2001

Quarterly Meeting June 27, 2001

Plan to drill ER well CdV-R37-2;  
ER intermediate wells in Mortandad;  
Current prioritized well list for FY 01  
and FY 02 is: ER R-13, R18, R21;  
DP R-8, R-14, R-20. FY 02 scope is  
Drill and complete R-13, R-8, and R-20;  
Could exchange R-14 for R-20.

Due to ER Program cost efficiencies during FY 01, the baseline schedule for drilling well R-13 was accelerated and work from FY 02 has been pulled into FY 01. Well R-13 is presently being drilled. Also, additional DP funding has been allocated by the Nuclear Weapons Infrastructure, Facilities and Construction Program for FY 01 in mid-August, allowing the more scope for drilling well R-8 to be pulled into the FY 01 baseline. Construction of well R-8 was started the second week of September.

Your letter of January 24, 2001 also included the requirement that a Field Implementation Plan, or similar document describing the data quality objectives for prospective wells be submitted to NMED/HWB at least two weeks prior to the drilling of each well. The Laboratory intends to meet this requirement. In addition, the Laboratory will provide you with weekly drilling updates via email per your request, documenting progress and any problems encountered during drilling. Likewise, the Laboratory will notify the HWB and NMED Department of Energy-Oversight Bureau (DOE-OB) within six (6) hours of when water is encountered during drilling so that NMED may split screening samples with the Laboratory. Finally, pursuant to your request, within thirty (30) days of a wells completion the Laboratory will submit a Well Completion Summary document to NMED.

Your letter also requested a complete data package including all physical and chemical analytical results and measurements (data without interpretation) resulting from borehole installation and groundwater screening samples to be submitted to NMED within sixty (60) days of well completion. The Laboratory understands the desire for this information in a more timely manner, yet believes that due to circumstances often beyond the Laboratory's control a commitment cannot be reliably made regarding that timeframe. However, the Laboratory agrees to provide information such as: borehole water chemistry, cuttings and core contaminant analyses, geophysical logs, and water level readings within a reasonable amount of time, not to exceed ninety (90) days from the date of well completion.

Should you have any questions regarding this letter, please contact Charlie Nylander, Water Quality & Hydrology Group (ESH-18) at (505) 665-4681.

Sincerely,



Charles L. Nylander, Program Manager  
Groundwater Characterization Program  
Los Alamos National Laboratory

Sincerely,



Mat Johansen, Project Manager  
Department of Energy  
Los Alamos Area Office

CN/tml

Cy: P. Allen, NMED/HWB, Santa Fe, New Mexico  
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J. Vozella, DOE/LAAO, MS A316  
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A. Barr, LANL, ESH-19, MS K498  
WQ&H File, MS K497  
IM-5, MS A150



GARY E. JOHNSON  
GOVERNOR

*State of New Mexico*  
**ENVIRONMENT DEPARTMENT**

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Santa Fe, New Mexico 87502-6110  
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PETER MAGGIORE  
SECRETARY

PAUL R. RITZMA  
DEPUTY SECRETARY

**CERTIFIED MAIL**  
**RETURN RECEIPT REQUESTED**

January 24, 2001

Dr. John C. Browne, Director  
Los Alamos National Laboratory  
P.O. Box 1663, MS-A100  
Los Alamos, New Mexico 87545

Mr. Theodore Taylor, Area Manager  
Los Alamos Area Office-Department of Energy  
528 35<sup>th</sup> Street  
Los Alamos, New Mexico 87544

**RE: SCHEDULE OF GROUNDWATER CHARACTERIZATION AND MONITORING  
WELLS FOR THE 2001 FISCAL YEAR,  
LOS ALAMOS NATIONAL LABORATORY,  
EPA ID NO. NM0890010515**

Dear Mr. Browne and Mr. Taylor:

This letter serves as the New Mexico Environment Department (NMED) Hazardous Waste Bureau (HWB) approval of the schedule for the installation of groundwater characterization wells under Los Alamos National Laboratory's (LANL) Hydrogeologic Workplan (Workplan). A well installation schedule was presented at the March 2000 Annual Workplan meeting held March 29-31, 2000 and was revised due to delays resulting from the Cerro Grande Fire. The revised and final schedule was presented during the October 3-5, 2000 Quarterly Workplan meeting. Three additional characterization/monitoring wells are also addressed in this letter.

The Workplan proposes a program for characterizing the hydrogeology beneath the Pajarito Plateau. Under the Workplan, characterization wells are to be constructed in such a manner so as to allow for use as a part of any required groundwater monitoring systems. The characterization activities were required as part of the NMED denial of the LANL groundwater monitoring waiver request (letter dated May 30, 1995) and subsequent letter regarding concerns over LANL's Ground Water Protection Program (letter dated August 17, 1995). The NMED denial was based on the insufficient information regarding the hydrogeologic conditions beneath LANL that were provided in the LANL groundwater monitoring waiver request under 40 CFR §265.90 (c) (incorporated at 20.1.4.600 NMAC). The Workplan also addresses the site-wide hydrogeologic

Dr. Browne and Mr. Taylor

January 24, 2001

Page 2 of 3

characterization requirements outlined in the LANL Hazardous and Solid Waste Amendments (HSWA) Permit, Module VIII, Task III: Facility Investigation Section.

The schedule/number of wells that HWB agreed to and expects completed this fiscal year (FY-2001) was presented in the October 3-5, 2000 Quarterly Workplan meeting and is as follows: R-5, R-7, R-8, R-13, R-22, and R-27. An additional regional aquifer well located at Technical Area (TA)-37, identified as CdV-R37-2, is also expected for completion this fiscal year. CdV-R37-2 is part of the characterization outlined in the RCRA Corrective Measures Study at the 16-260 Outfall [Potential Release Site 16-021(c)-99]. Additionally, two intermediate depth wells (600-700 feet) in Mortandad Canyon are also to be completed. These wells are required under the Mortandad Canyon Work Plan and the TA-50 Radioactive Liquid Waste Treatment Facility discharge permit. Although the schedule is approved for the 2001 FY, HWB is still concerned over the slow pace of installation of the characterization wells. The Workplan was to be completed by FY 2002 and is now scheduled for completion FY 2005. HWB realizes that some of the latest delays may have been beyond LANL's control; however, LANL must make every effort to complete the Workplan by the original (FY 2002) schedule. Recent proposed changes in the drilling strategy should allow LANL to expedite the current FY 2005 Workplan completion date.

At least two weeks prior to the drilling of each well, LANL shall submit to HWB a Field Implementation Plan (FIP) or similar document that outlines the data quality objectives for the well, methods of data and sample collection and analysis, expected total depth for the well, drilling/completion schedule, expected geology and groundwater horizons, and expected use of geophysics. In addition, a weekly drilling update via email to NMED to document progress and any problems encountered during drilling. These weekly drilling updates will facilitate communication between LANL and NMED regarding the drilling program(s).

LANL shall notify the HWB and the NMED Department of Energy-Oversight Bureau (DOE-OB) within 6 hours of when water is encountered during drilling so that NMED may split screening samples with LANL. In addition, a completion report is required to be submitted to HWB within 30 days of well completion. A *complete data package* shall also be submitted to the HWB and DOE-OB within 60 days of well completion. The data package shall include but is not limited to, all screening chemical analyses, geophysical logs, hydrogeologic property testing, core/cutting analyses, etc. The required package is a data submittal *only*, interpretations of data are not requested. This is to ensure a timely data submittal to the regulatory agency and other stakeholders of preliminary findings.

Dr. Browne and Mr. Taylor  
January 24, 2001  
Page 3 of 3

Should you have any questions please call me at (505) 827-1558, extension 1036.

Sincerely,



John Young  
LANL Corrective Action Project Leader  
Permits Management Program

JRY

cc: P. Allen, NMED HWB  
J. Bearzi, NMED HWB  
C. Will, NMED HWB  
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